Liquid chrome Upgrade Cookbook

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Introduction

This document is designed to help a TARGA 3000 or Liquid silver customer upgrade to Liquid chrome.

The individual using this document must be technically capable of understanding and interpreting this information. Neither this document nor Pinnacle Systems Support are meant to educate the computing novice or casual integrator about the details needed to construct a reliable, high performance editing workstation. Experience has proved that a better use of time and money is to rely on a Pinnacle Systems Authorized VAR (Value Added Reseller) to configure and support a fully integrated Liquid editing workstation.

This is a working document, periodically updated as new information or knowledge is acquired. Regardless of the advice given here, Pinnacle Systems does not warrant or guarantee the performance of the systems or components recommended.

1.1 Related Documents

Specifics of Liquid chrome installation can be found in the Liquid chrome reference guide that is included with the product.

There is a troubleshooting guide and frequently asked questions page on the Liquid chrome support site. Please consult these areas to avoid common problems.

For information on how to contact Pinnacle Systems, please see
http://www.pinnaclesys.com/support/contact/

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2 Certified Workstations and Motherboards

2.1 What Does Certified Mean?

A computer workstation or peripheral that has been certified by Pinnacle Systems means that the certified equipment has been tested at Pinnacle Systems and meets or exceeds our requirements for a particular product, and that the same model(s) from this manufacturer will perform at a predictable level of compliance. Please note that we cannot guarantee performance or compatibility with systems that are configured outside of our recommendations.

2.2 System Requirements

All TARGA 3000 workstations configured for Liquid chrome need the following components. This is a minimum requirements list for reference purposes only; the actual end product should be customized to the format you will be working with (i.e. uncompressed YUV or DV). Consult the following section "Choosing the Right Ingredients" for more specific requirements:

- PC Workstation with at least 1 64 bit PCI slot
- 1GB RAM
- Ultra3 (160m) SCSI Controller for AV drives or array
- AV Capable Drives or Arrays. 4 for quad stream MPEG2/DV or dual stream uncompressed, 8 for 3 streams uncompressed or higher.
- Certified AGP Graphics Adapter
- 9 GB or Larger System Disk (SCSI Ultra3) - Microsoft Windows 2000 Professional with Service Pack 3 or higher
- Apple QuickTime v6.0 or above
- Direct X 8.0a (You can obtain this version of DirectX at http://www.microsoft.com/directx/homeuser/downloads/default.asp

2.3 Choosing the Right Ingredients

The TARGA 3000 Family of software and hardware is scaleable, meaning that better performance will be realized with faster systems. System requirements will vary, depending on the format being used. For example, if DV25 is used for acquisition and editing, the requirements are not as high as YUV. The following codec choices will help define the "strength" of the system needed:

DV25. This is an "industrial" quality (4:1:1 / 4:2:0) codec. It is conservative on disk usage (12 GB/hour), data rates up to 3.6 MBps per stream and has less chroma bandwidth than the other codecs. If planning on effects work, consider one of the higher-quality codecs.

MPEG-2. This is the closest equivalent to the MJPEG format that users are accustomed to in other high-performance editing systems. Disk usage at the highest quality setting is 24 GB/hour. The data rate can be set between 5 Mbits/sec (0.6 MBps., offline quality) and 50 Mbits/sec (6.25 MBps., online quality) per

stream. The MPEG2 codec in Liquid chrome is I-frame only, and can be edited with frame accuracy. If image quality and disk usage are important, MPEG2 is recommended.

YUV. This is uncompressed D1(4:2:2) quality. Disk usage is high, about 72 GB/hour, and the data rate is about 20 MBps per stream. Recommended for high quality or multi-layer work and compositing.

RGBA. This is uncompressed D1(4:4:4:4) quality with no sacrifice in chroma bandwidth. Disk usage is about 144 GB/hour, or data rate of 40 MBps per stream. This is only useful if clips are imported directly into Commotion or Adobe After Effects or other compositing desktop applications that work with this format.

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3 System Considerations

3.1 How Much RAM is Necessary?

Liquid chrome requires 1GB RAM.

3.2 Operating System

As noted, a Liquid chrome workstation requires at minimal Windows Professional 2000 with Service Pack 3 or higher.

Windows XP Professional is not yet officially supported.

3.3 Virtual Memory

Virtual memory should be fixed in size and should neither be smaller nor more than 25MB larger than the physical memory in the machine. Furthermore the virtual memory should be set up on a partition other than the operating system and applications (pagefile.sys). This prevents excessive fragmentation of the disk, which impacts performance. Virtual memory should not be put on the video drive for the same reason. Ideally, it should have its own partition on the system drive and the system drive should be chosen to be fast.

3.4 TSRs

Software such as Scheduler, Task Reminder, Microsoft Outlook, Real Player and Screen Savers can interrupt a T3K session causing drop frames and other performance problems. All TSRs should be disabled and the workstation should ideally be disconnected from the network during an edit session.

3.5 Bus Mastering

Make sure that Bus Mastering is enabled in the BIOS for all PCI slots. This is a requirement.

4 Liquid Chrome Certified Workstations

4.1 HP XW-8000

Tested Configuration:

Main Board
HP system board
BIOS
ver:JQ.WI.04US. Configured as shipped
RAM
1024 MB (4x256) PC2100 ECC DDR 266
CPU
Dual Intel Xeon CPU 2.8 GHz
SCSI
LSI Logic 1020/1030
Ultra320 Internal Adapter driver V1.8.22.0
MPT-BIOS build 5.02.00
VGA
Nvidia Quadro 4, 380XGL driver: 4.2.9.0
Audio
On board SoundMAX Integrated Digital Audio Driver: 5.12.1.3513
LAN
Onboard Intel8254OEM driver: 6.2.21.0
System Drive
Seagate ST318453LW (18GB)
Video Drives
External Rorke U320 MaxArray 8x72GB (ST373307LC) on channel A.
CD Drive
HP HL-DT-ST RW/DVD GCC 4320B
OS
Microsoft Windows 2000 Professional Version 5.0. 2195 + Service Pack 3
Software
Liquid chrome v5.0

Slot Assignments:

AGP	Nvidia Quadro4 380XGL
PCI Slot 1	for options use (32bit)
PCI Slot 2	for options use (32bit)
PCI Slot 3	for options use (64bit) (PCI-X133)
PCI Slot 4	TARGA 3000 w/ K2 installed (64bit) (PCI-X100)
PCI Slot 5	for options use (64bit) (PCI-X100)

Configuration Notes:

No special BIOS settings necessary.

Specifications and Features:

Power Supply
450 watts, with Power Factor Correction
Processor Support
Supports up to two Intel Xeon processors, 2.4-GHz, 2.66-GHz, 2.8-GHz, and 3.06-GHz, 533MHz front side bus
Chipset
Intel E7505 chipset with 533-MHz front side bus and dual memory channels
Front Side Bus
533MHz front side bus
Memory
~ 8 GB of DDR266-MHz ECC PC2100 Registered
Cache Memory
512-KB integrated, full speed Level 2 cache per processor
Network Controller
Integrated Intel 10/100/1000 Mb Ethernet adapter
Expansion Slots
I/O (Total) 6, up to 5 available
PCI-X 1.0 64b/133MHz - 1, up to 1 depending on model
PCI-X 1.0 64b/100MHz - 2, up to 2 depending on model
PCI 2.2 32b/33MHz - 2, up to 2 depending on model
AGP 8x Pro 50 (50w) - 1, up to 1 depending on model
Controllers
SCSI
Integrated dual channel Ultra320 SCSI controller
Ultra ATA/100
Integrated Ultra ATA/100
Interfaces
Parallel - One 25-pin DIN (rear)
USB 2.0 - 6 (2 front, 4 rear)
Serial - One 9-pin DIN (rear)
Ultra320 SCSI - 2 (68-pin internal and optional 68-pin external)
Ultra ATA/100 - 2 (internal)
IEEE 1394 - 2 (1 front, 1 back)

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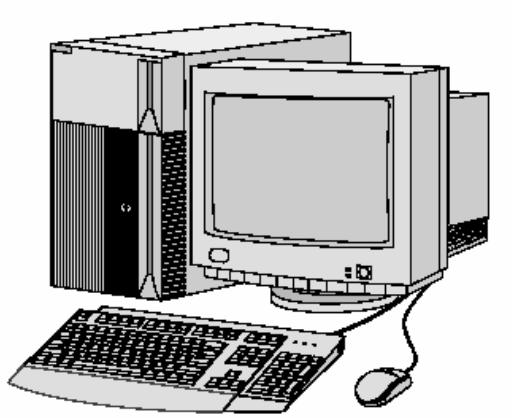
4.2 IBM Intellestation ZPRO 6866-XXU



Tested Configuration:

BIOS
version PFKT 32.0 dated 02/24/00
Model 6866-30U
SCSI
Adaptec AIC-7899 dual Ultra3 SCSI controller (onboard)
CPU
Single Pentium III Xeon 866MHz "Coppermine" 133 MHz FSB
RAM
1GB PC 600 RDRAM
VGA
Matrox Millenium G400 dual head 32MB display adapter
Video Drives
Eight Seagate ST318451LW Cheetah U160 SCSI hard drives
OS
Windows 2000 with service pack 3 installed

Slot Assignments:

AGP	Matrox G400
PCI32-1	Empty
PCI32-2	Empty
PCI32-3	Empty
PCI32-4	Empty
PCI64-1	TARGA 3000 with K2 installed
PCI64-2	Empty

Configuration Notes:

Install Intel's Application Accelerator if using IDE boot drive for optimal performance.

Must turn off PCI Parity in the BIOS.

Specifications and Features:

Architecture
Form factor Mini tower (7x9)
Orientations allowed Vertical
Slots x bays total (free) 7(6) x 9(6)
Expansion bus type PCI
Processor
Processor (CPU) Pentium III Xeon
Processor internal clock speed 866 MHz
Planar clock speed 133 MHz
SMP processors std 1
SMP processors max 2
Upgradeable processor Yes
Math co-processor Built-In
L1 internal CPU cache 32 KB
Processor upgrade options SMP via second Pentium III
SMP capable (multiple processors) Yes
L2 cache std 256KBL2 cache max 256KB
BIOS type Flash ROM
Memory
Memory (RAM) std 256 MB
Memory (RAM) max3 1024 MB
RAM speed 600MHz
Optional RAM configuration:
RAM type PC 600 ECC RDRAM
RAM slots total 4 RIMM
RAM slots available 2 RIMM
Expansion options
Slots total (free) and type 1(0) AGP fullsize, 6(6) PCI fullsize
3.5 inch bays - accessible (free) and height 1(0) SL
3.5 inch bays - not accessible (free) and height 6(5) SL
5.25 inch bays - accessible (free) and height 2(1) HH

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4.3 Compaq Evo Workstation W8000

Tested Configuration:

BIOS revision and date
Compaq System ROM v01.19
OS and service pack information Windows2000 Professional w/ sp3
BIOS settings
As shipped
CPU
1 x Pentium Xeon 2.0GHz
RAM
4 x 256MB ECC PC800 RDRAM
SCSI
1 x Integrated AIC-7899 dual channel U160 SCSI controller. Driver: v3.60a
VGA
1 x Nvidia Quadro4 380XGL adapter.
Driver: v4.2.9.0
Network
1 x Intel 82559 Fast Ethernet LOM
System Drive
1 x COMPAQPC MAM3184 SCSI System drive
Video Drives
4 x Quantum Atlas 10K U160 External Video Array

Specifications and Features:

Supported Processors
Supports dual/single Intel® XeonTM(Socket 603) processor
400 MHz Front Side Bus
Memory Type
PC800 Rambus RDRAM Memory Expandable to 4GB
Chipset
Intel® 860 chipset
82860 North Bridge,
82801BA I/O Controller Hub,
82802AB Firmware Hub
82806AA PCI 64 Hub
I/O Expansion Slots
1 x AGP Pro 4x
2 x 64-bit/66-MHz PCI
4 x 32-bit/33-MHz PCI
Integrated Devices
Integrated Intel PRO/100+ Management Adapter
Integrated dual channel ATA 100 IDE controller
Integrated dual channel 160 controller
Integrated SoundBlaster 128 Audio

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4.4 SuperMicro P4DC6+

Tested Configuration:

BIOS version and date
1.1B - 01/07/2002
SCSI
Adaptec AIC-7899 dual Ultra3 SCSI controller (onboard). Adaptec SP4 released driver
CPU
Single Pentium 4 Xeon 2.0GHz 400MHz FSB
RAM
1 GB PC 800 RDRAM
VGA
NVIDIA QUADRO MXR-2 Display Adapter with NVIDIA Reference Driver v43.51
Sound
Soundblaster Audigy Driver version 1.1
Video Drives
Eight Seagate ST318451LW Cheetah U160 SCSI hard drives
System Drive
Maxtor 40GB UATA-100 System drive
Operating System
Windows 2000 with service pack 3 installed

Slot Assignments

AGP Nvidia Quadro MXR-2
PCI64-2 Empty
PCI64-1 TARGA 3000 with K2 installed
PCI32-4 Empty
PCI32-3 Empty
PCI32-2 Creative Labs Soundblaster Audigy
PCI32-1 Empty

Specifications and Features:

Form Factor
Extended ATX
Size: 12" x 13" (W x H)
Supported Processors
Intel 603-pin Xeon CPU 1.5-2.0GHz+
Memory Type
Dual Channel 600/800 MHz RDRAM with Transfer Rate up to
3.2 GB/s
Four 184-pin RIMMs for 600/800 MHz RDRAM up to 2 GB
Two Rambus Inline memory modules of the same memory size is the minimum requirement.
Chipset
Intel 860 chipset
MCH(1012 OLGA)-memory & graphic
ICH2(36 0EBGA)-I/O controller
FWH(32 PLCC)-BIOS and management controller
P64H(241 mBGA)-64bit bus master PCI expander
I/O Expansion Slots
2 64-bit 66MHz PCI
4 32-bit 33MHz PCI
1 4xAGP Pro 1.5V
Integrated Devices
Dual EIDE ports support Ultra DMA 100MB/s of Burst data transfer rate, supports UDMA Mode 5, PIO Mode 4 and ATAPI
AC97' Audio
Onboard Adaptec AIC-7899W (7902 future option) dual channel
Ultra160 (320) SCSI controller
Intel 82559 LAN controller
PC hardware health monitoring
1 Floppy
2 Fast UART 16550 serial ports
1 ECP/EEP parallel port
1 Infrared header
Up to 4 USB ports
PS/2 keyboard and mouse ports
Chassis Compatibility:
Extended ATX

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4.5 Compaq SP750

Tested Configuration:

Bios Version
2.13
SCSI
Adaptec AIC-7899 dual Ultra3 SCSI controller (onboard)
Adaptec AHA-39160 Driver version: 6.1.530.201
CPU
Single Pentium III Xeon 800MHz "Coppermine" 133 MHz FSB
RAM
512 MB PC 600 RDRAM
VGA
Matrox Millenium G400 dual head 32MB display adapter. Driver Version: 5.88.61
Video Drives
Eight Seagate ST318451LW Cheetah U160 SCSI hard drives
Operating System
Windows 2000 with service pack 3 installed

Slot Assignments

AGP Matrox G400
PCI32-1 Empty
PCI32-2 Empty
PCI32-3 Empty
PCI32-4 Empty
PCI64-1 TARGA 3000 with K2 installed
PCI64-2 AHA-39160

Configuration Notes:

Install Intel's Application Accelerator if using IDE boot drive for optimal performance.

Must use a peripheral SCSI controller on the second 64 bit slot if uncompressed video performance is desired. The onboard controller will not work properly under high data rate transfer to T3K.

Specifications and Features:

Architecture:
Form factor Mini tower (7x9)
Orientations allowed Vertical
Slots x bays total (free) 7(6) x 9(6)
Expansion bus type PCI
Processor:
Processor (CPU) Pentium III Xeon
Processor internal clock speed 866 MHz
Planar clock speed 133 MHz
SMP processors std 1
SMP processors max 2
Upgradable processor Yes
Math co-processor Built-In
L1 internal CPU cache 32 KB
Processor upgrade options SMP via second Pentium
III
SMP capable (multiple processors) Yes
L2 cache std 256KB
L2 cache max 256KB
BIOS type Flash ROM
Memory :
Memory (RAM) std 256 MB
Memory (RAM) max3 1024 MB
RAM speed 600MHz
Optional RAM configuration:
RAM type PC 600 ECC RDRAM
RAM slots total 4 RIMM
RAM slots available 2 RIMM
Expansion options:
Slots total (free) and type 1(0) AGP fullsize, 6(6) PCI
fullsize
3.5 inch bays - accessible (free) and height 1(0) SL
3.5 inch bays - not accessible (free) and height 6(5)
SL
5.25 inch bays - accessible (free) and height 2(1) HH

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4.6 Tyan Tiger MPX S2466

Tested Configuration:

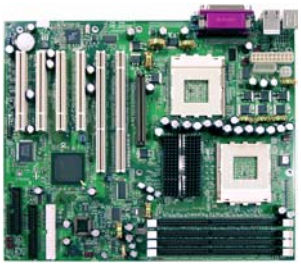
BIOS
version 1.03
SCSI
Adaptec AHA 39160 BIOS 2.57.2
Driver: Adaptec SP4 release version 6.1530.201
CPU
Dual AMD Athlon MP 2000+
AMD Chipset Driver 5.33
RAM
1 GB DDR PC2100 Memory
VGA
ATI RADEON 9700 Pro Driver version: 6.14.10.6360
Sound
Soundblaster Audigy Driver version 5.12.1.383
Video Drives
Eight Seagate ST318451LW Cheetah U160 SCSI hard drives
USB
Opti 82c861 USB driver 5.02183.1
Network
3com 3c920 Network Driver 5.02195.0
System Drive
Maxtor 40GB UATA-100 System drive
AMD ATA-100 IDE driver version 1.43s
Operating System
Windows 2000 with service pack 3 installed

Slot Assignments

AGP: ATI RADEON 9700 Pro
PCI64-2: TARGA 3000 with K2 installed
PCI64-1: AHA-39160D
PCI32-4: Empty
PCI32-3: USB Adapter
PCI32-2: Creative Labs Soundblaster Audigy
PCI32-1: Empty

Configuration Notes:

There are 2 versions of the Tiger MPX (S2466)
When updating the BIOS please make sure you load the correct version or the board will be unusable with the wrong version installed.



Specifications and Features:

Processor
Dual PGA462 ZIF sockets
Supports up to two AMD Athlon MP Processors
Two onboard VRMs
System bus support for 200MHz or 266MHz
Chipset
AMD-760 MPX chipset
AMD-762 north bridge and AMD-768 south bridge
Winbond W83627HF-AW LPC I/O ASIC
Memory
Four 184-pin 2.5v DDR DIMM sockets
Supports up to 4GB* of Registered PC2100 DDR memory
Supports ECC (72-bit) memory modules
* Note: The AMD-760 MPX requires a portion of memory to be reserved for PCI devices. Allocation for these devices is dependent on the number of PCI devices installed, and option ROM for each device. Common configurations will see 3.5GB to 3.8GB of available memory.
Expansion Slots
• One AGP slot supports 2x and 4x modes
• Two 64-bit 66MHz (3.3-volt) PCI slots
• Four 32-bit 33MHz (5-volt) PCI slots
• Total of seven usable slots
Integrated I/O
• One floppy connector supports up to two drives
• Two 9-pin 16550-based serial ports
• One 25-pin SPP/ECP/EPP parallel port
• Four USB ports (two via back plate, and two more via optional cable) **
• PS/2 keyboard and mouse ports
Integrated PCI IDE
• Dual-channel master mode
• Supports up to four Enhanced IDE devices
• Support for ATA-100/66/33 IDE and ATAPI compliant devices
Integrated LAN
• 3Com 3C920 LAN controller (3C905C driver set)
• Supports 10Mbps and 100Mbps transfer rates
Hardware Monitoring
• Winbond W83782D hardware monitoring ASIC

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• 3-pin fan monitoring headers

BIOS

• Phoenix BIOS on 2 or 4Mb Flash ROM
• User settings for hardware monitoring
• Auto-configuration of IDE hard drive types
• Multiple boot options
• DMI 2.0 compliant

Form Factor

• ATX footprint (12" x 10.3", 304.8 x 261.62mm)
• Unique "tri-connector" design supports ATX 2.01, ATX
2.03 or ATX12V power connector types
• Stacked parallel (one) and serial (two) ports
• Stacked LAN (one) and USB (two) ports
• Stacked keyboard and mouse ports

Regulatory

• FCC DoC (Declaration of Conformity) certified
• European CE (Declaration of Conformity) certified

NOTE:

The Tiger MPX is designed to accept the widest variety of ATX power supplies, including ATX 2.01/2.03 and ATX12V.
The supply must have a minimum output of 300 watts.
** Tiger MPX's manufactured prior to April 1st, 2002 feature interface cardbased
USB ports.

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4.7 IWILL DX400-SN

Tested Configuration:

BIOS
Revision 06.25.2002

CPU
2 x 2.0 GHz Intel Pentium Xeon Processors

RAM
2 x 256MB PC800 ECC RDRAM from Apacer

VGA
1 x Matrox Millenium G400 Dual Head 32MB Driver Version 5.88.061

SCSI
1 x Adaptec AHA-39160 Dual Channel U160 Driver version 6.1.530.201

Video Drives
Eight Seagate ST318451LW Cheetah U160 SCSI hard drives

System Drive
Maxtor 40GB UATA-100 System drive

OS

Windows 2000 with service pack 3 installed

Slot Assignments

AGP: Matrox Millenium G400
PCI32-2: Empty
PCI32-1: Empty
PCI64-2: TARGA 3000 (with K2 installed)
PCI64-1: AHA-39160
PCI32-3: Empty

Specifications and Features:

Form Factor:
ATX form factor with 305mm x 330mm board size
Supported Processors:
Supports dual/single Intel® XeonTM(Socket 603) processor. Supports CPU speed from 1.3GHz up to 1.7GHz and higher
Memory Type:
Supports DRDRAM modules (RAMBUS memory)
Bus operating at a clock rate of 400MHz to 800MHz Max 4GB memory capacity
Chipset:
Intel® 860 chipset
MCH(1012 OLGA)-memory & graphic
ICH2(36 0EBGA)-I/O controller
FWH(32 PLCC)-BIOS and management controller
P64H(241 mBGA)-64bit bus master PCI expander
I/O Expansion Slots:
1 x AGP Pro Slot supports AGP 4X mode
Supports AGP Pro 1.5V only
2 x 64-bit/66MHz Bus Master PCI Slots
3 x 32-bit/33MHz Bus Master PCI Slots
Integrated Devices:
Onboard dual channel ATA100 IDE controller
Onboard dual channel Ultra160 Qlogic SCSI controller
AD1881 AC'97 Audio CODEC
Integrated Intel® 82559 10/100 LAN controller
1 x Floppy connector supports up to two drives

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Configuration Notes:

Mainboard requires P4 compatible power supply 400W or higher in order to operate properly.

Memory Expansion Card might require specially designed chassis that supports 7 full length cards.

Iwill recommended NMB IT002A430WSW power supply to be used.

Under Windows 2000, Intel INF installer version 3.20 or higher needed.

Install Intel's Application Accelerator V2.3 if using IDE boot drive for optimal performance

1 x 9-pin 16550-based serial ports
1 x 25-pin SPP/ECP/EPP parallel
2 x PS/2 connectors(keyboard and mouse)
6 x USB ports (2 x internal USB)

Chassis Compatibility:

WATX compatible chassis

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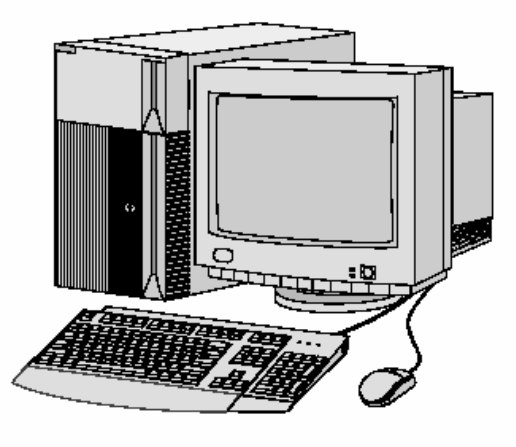
IBM MPro 6850



TESTED CONFIGURATION:

- BIOS version DAE140A for 6850-J2U Bios Date 04/15/03
- Adaptec AIC-7899 dual Ultra3 SCSI controller (onboard) Driver version: 6.1.530.201
- Dual Intel Xeon 1.7 GHz 400 MHz FSB
- 512 MB PC 800 RDRAM
- NVIDIA Quadro 2 Pro 64MB v6.14.01.4351
- Eight Seagate ST318451LW Cheetah U160 SCSI hard drives
- Windows 2000 with service pack 3 installed

SLOT ASSIGNMENTS:

AGP: NVIDIA Quadro2 Pro
PCI32-1: Empty
PCI32-2: Empty
PCI32-3: Empty
PCI64-1: Targa 3000 w/K2
PCI64-2: Empty

CONFIGURATION NOTES:

Install Intel's Application Accelerator V2.3 if using IDE boot drive for optimal performance

Under Windows 2000, Intel INF installer version 3.20 or higher needed.

FEATURES AND SPECIFICATIONS:

Supported Processors:
Supports dual/single Intel® XeonTM(Socket 603) processor
400 MHz Front Side Bus
Memory Type:
PC800 Rambus RDRAM Memory Expandable to 4GB
Chipset:
Intel® 860 chipset
82860 North Bridge,
82801BA I/O Controller Hub,
82802AB Firmware Hub
and 82806AA PCI 64 Hub
I/O Expansion Slots:
1 x AGP Pro 4x
2 x 64-bit/66-MHz PCI
3 x 32-bit/33-MHz PCI
Integrated Devices:
Integrated Intel PRO/100+ Management Adapter
Integrated dual channel ATA 100 IDE controller
Integrated dual channel 160 controller
Integrated AC'97 Audio CODEC

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Tyan Thunder i860 (S2603)

TESTED CONFIGURATION:

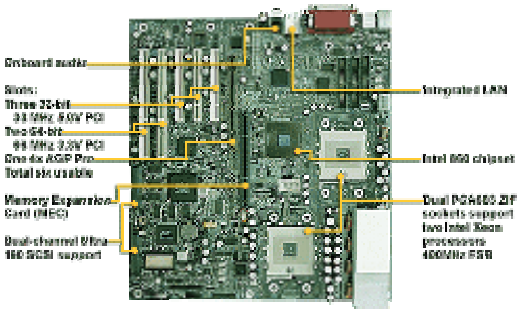
- BIOS version 1.07
- LSI Logic 53C1010R dual channel U160 Controller
- Dual Pentium 4 Xeon 2.0GHz 400MHz FSB
- 2 x 256MB PC 800 RDRAM
- 1 x Matrox Millenium G400 Dual Head 32MB Driver Version 5.88.061
- Eight Seagate ST318451LW Cheetah U160 SCSI hard drives
- Maxtor 40GB UATA-100 System drive
- Windows 2000 with service pack 3 installed

SLOT ASSIGNMENTS:

AGP: Matrox G400
PCI32-3: Empty
PCI32-2: Empty
PCI32-1: Empty
PCI64-2: TARGA 3000 with K2 installed
PCI64-1: Empty

CONFIGURATION NOTES:

- Install Intel's Application Accelerator V2.3 if using IDE boot drive for optimal performance.
- Mainboard requires P4 compatible power supply 400W or higher in order to operate properly.
- Under Windows 2000, Intel INF installer V3.20 or higher needed.



FEATURES AND SPECIFICATIONS:

Form Factor:
Extended ATX
Size: 12" x 13" (W x H)
Supported Processors:
Intel 603-pin Xeon CPU 1.5-2.0GHz+
Memory Type:
Dual Channel 600/800 MHz RDRAM with
Transfer Rate up to
3.2 GB/s
Eight 184-pin RIMMs for 600/800 MHz
RDRAM up to 4 GB on MECC
Two Rambus Inline memory modules of the same memory size
is the minimum requirement.

Chipset:
Intel 860 chipset
MCH(1012 OLGA)-memory & graphic
ICH2(36 0EBGA)-I/O controller
FWH(32 PLCC)-BIOS and management controller
P64H(241 mBGA)-64bit bus master PCI expander
I/O Expansion Slots:
2 64-bit 66MHz PCI
3 32-bit 33MHz PCI
1 4xAGP Pro 1.5V
Integrated Devices:
Dual EIDE ports support Ultra DMA 100MB/s of Burst data transfer rate, supports UDMA Mode 5, PIO Mode 4 and ATAPI
AC97' Audio
Onboard LSI Logic dual channel 53C1010R Ultra160 SCSI controller
Intel 82550 LAN controller
PC hardware health monitoring
1 Floppy
2 Fast UART 16550 serial ports
1 ECP/EEP parallel port
1 Infrared header
Up to 4 USB ports
PS/2 keyboard and mouse ports
Chassis Compatibility:
Extended ATX

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Additional Certified Systems

We will be certifying additional machines on a regular basis. Please check this document for frequent updates.

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5 Hard Drives and Disk Arrays

Below are notes and advice for installing and maintaining your video disk arrays with your Liquid chrome systems

Specification of Liquid chrome Turnkey Storage Option

The drives that come with the Liquid chrome Turnkey Storage Option are:

- Seagate ST373307LW

Installing the 4th Internal Drive with the HP XW-8000.

Below are specific notes on how to install the 4th internal SCSI drive with the HP XW-8000.

- Install the drive with ID four on the bottom of the chassis first as show. Note: There should be three screws right below the speaker are reserve to mount this drive. Remove these screws and use them to mount drive ID 4.

5.1 Configuring Internal Arrays

Below are the steps for formatting an internal SCSI array. Example drives are 70GB each.

- As requested by Window to log on, click on OK to log on Administrator.
- Click Cancel on all of Found New Hardware Wizard Window.
- Right click on My Computer > Manage > Disk Management.
- Click Next on Write Signature and Upgrade Disk Wizard.
- Check on all four drives and click Next to write signature for all four drives.
- Check on all four drives and click Next to dynamic upgrade the drives.

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- Click on Finish to complete the task.
- Check and verify that drive 1 to 4 now are Dynamic and online drives.
- Right click on Disk 1. Select Create Volume.
- Click Next on Create Volume Wizard Window.
- Select Striped Volume and click Next button.
- Click on Disk 2 to highlight it. Hold down Ship key and click on Disk 3 and Disk 4 to select all three disks.
- Click on the ADD button.
- On the Selected Dynamic Disk box, should appear four disks with the Total Volume Size of 280008MB base on four 70Gb drives.
- Click on Next button. Select R for Assign Drive Letter and click on Next button.
- On the Format Volume Window, Select:
  - Format This Volume As Follow
  - Set:
  - NTSF = File System To Use.
  - Render = Volume Label.
  - Check on Perform a Quick Format
- Click on Next then Finish button.
- After drives have finish formatting, check and verify that disk 1 to 4 are named Render, their assigned letter is R and they are labeled as Striped Volume (green color indicating striped volume).
- Close the Disk Management Window and reboot the system.

Certified Drive Arrays

RORKE MAXARRAY U320

MIN WRITE: 60MB/s
MAX WRITE: 220.9MB/s
MIN SEQUENTIAL READ: 92.7MB/s
MAX SEQUENTIAL READ: 240.2MB/s
MIN RANDOM READ: 22.1MB/s
MAX RANDOM READ: 78.5MB/S

PLAYBACK TESTS:

FORMAT	RESULTS
YUV x 2	PASS
YUV x 3	PASS
YUV x 4	FAIL
YUV x 2 + DV25 x 2	PASS
YUV x 2 + MPG25 x 2	PASS
YUV x 3 + MPG25 x 2	PASS

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YUV x 3 + DV25 x 2	PASS
DV25 x 2	PASS
MPG25 x 2	PASS

RORKE GALAXY 12i

MIN WRITE: 33.7 MB/s
MAX WRITE: 72.5 MB/s
MIN SEQUENTIAL READ: 40.9 MB/s
MAX SEQUENTIAL READ: 114.6MB/s
MIN RANDOM READ: 12.1MB/s
MAX RANDOM READ: 40.2MB/s

PLAYBACK TESTS:

FORMAT	RESULTS
YUV x 2	PASS
YUV x 3	FAIL*
YUV x 4	FAIL
YUV x 2 + DV25 x 2	PASS
YUV x 2 + MPG25 x 2	PASS
YUV x 3 + MPG25 x 2	FAIL
YUV x 3 + DV25 x 2	FAIL
DV25 x 2	PASS
MPG25 x 2	PASS

* = Occasional drop frames on playback but is successful 90 percent of playback loops

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